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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869,896	10/05/2001	Hirotoshi Yano	04476.00006	1279

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EXAMINER
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LEURIG, SHARLENE L

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/869,896	YANO ET AL.
	Examiner	Art Unit
	Sharlene Leurig	2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 16 May 2003.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1 and 5-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 1,5-15, 17-20 and 22 is/are allowed.

6) Claim(s) 16 and 21 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \*    c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a)  The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)

3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_      6)  Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed on May 16, 2003 has been entered and acknowledged by the Examiner. Cancellation of claims 2-4, amendment to claims 1, 5, 6, 9, 10, 12, 15-18 and 20-21 and addition of new claim 22 have been entered.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Odagaki (JP 10-112290) (of record) in view of Adams (5,965,093) (of record), and further in view of Yokogawa (JP 10-284008) (of record).

Odagaki discloses a discharge lamp comprising a long and slender translucent airtight container (Figure 1, element 1), a discharging medium primarily composed of a rare gas filled in the translucent airtight container (paragraph 008, line 8), and an outer electrode composed of a conductive coil (5) which is substantially in contact with an outer surface of the translucent airtight container extending along its longitudinal direction apart from the inner electrode and which enables it to generate discharge in the translucent container between the outer electrode and the inner electrode.

Odagaki lacks a phosphor film formed on an inner surface of the translucent container but discloses the usefulness of the lamp as a germicidal instrument.

Adams (5,965,093) teaches a fluorescent layer formed on the inner wall of the glass tube in order to generate higher levels of ultraviolet radiation to more effectively kill bacteria and other germs.

Therefore it would have been obvious to one of ordinary skill in the art to modify Odagaki's lamp with a fluorescent layer on the inner wall of the tube in order to provide a more effective germicidal lamp.

Odagaki further lacks an outer electrode containing at least one point of inflection where the winding pitch of the coil changes from a small value to a large value. However, Odagaki discloses the need for a properly wound electrode that produces sufficient luminous intensity (paragraph 0010, line 11).

Yokogawa teaches the formation of an external electrode whose gaps change in width in the axial direction in order to vary luminous intensity (paragraph 0022, line 8). As shown in Figure 10a, one such external electrode shape can be in the form of an electrode with a point of inflection where the pitch changes from a small to a large value.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Odagaki's lamp with an external electrode where the winding pitch has a point of inflection in order to vary the luminous intensity to attain the desired germicidal effect.

3. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Odagaki (JP 10-112290) (of record) in view of Adams (5,965,093) (of record), further in view of

Yokogawa (JP 10-284008) (of record) as applied to claim 16 above, and further in view of Tyler (5,747,946) (of record).

Odagaki discloses an outer electrode that is designed so as to satisfy the formula:  $w \times n \leq 0.3$  where  $w$  (cm) is a width of the conductor comprising the outer electrode and  $n$  (turns/cm) is the average number of turns of the conductor in the unit length in the axial direction of the glass tube, as discussed above. Odagaki discloses an outer electrode formed from a wire with a diameter of 0.4 mm (paragraph 0010, line 7) and a tube with a length of 132 mm (paragraph 0009, line 1). Figure 1 shows a lamp with an outer electrode of 18 turns, which when combined with the length of the lamp, yields an  $n$  value of 1.36 turns/cm. The product of  $w$  and  $n$  is therefore .054, which is less than 0.3.

Odagaki lacks disclosure of the lamp being used in a liquid crystal display.

Tyler teaches a discharge lamp having similar attributes as the lamp disclosed by Odagaki, including a glass tube (Figure 3, element 1) with both ends sealed airtight and a discharge medium filled in the inside (column 2, line 59), a fluorescent layer formed on the inner wall of the glass tube (column 2, line 59), an inner electrode arranged at one end of the glass tube which is given with one electric potential (10), and an outer electrode (15) composed of a linear conductor spirally wound around the glass tube between its both ends at a prescribed pitch along an axis of the tube and is given with another electric potential (column 2, line 67). Tyler discloses the use of the lamp in a liquid crystal display (column 2, line 64), the lamp having a main body and a lighting circuit to turn on the fluorescent lamp (column 2, line 66).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use Odagaki's lamp in a liquid crystal display, as taught by Tyler, since the lamp taught by Tyler is so similar to the one disclosed by Odagaki and Tyler teaches such a lamp to be useful as an LCD backlighting device.

### ***Response to Arguments***

4. Applicant's arguments, see Amendment B, filed on May 16, 2003, with respect to claims 1, 5-9 and 18-19 have been fully considered and are persuasive. The rejection of claims 1, 5-9 and 18-19 has been withdrawn.

5. Applicant's arguments filed on May 16, 2003 have been fully considered but they are not persuasive. The applicant has argued that claim 16 is allowable over the prior art, namely Odagaki (JP 10-112290) (of record) in view of Adams (5,965,093) (of record), further in view of Yokogawa (JP 10-284008) (of record), because "the lamp of Yokogawa is based on a different principle of varying luminous intensity from that of the present invention as recited in claim 16." The applicant goes on to argue that while Yokogawa teaches varying luminous intensity by "changing the gaps of the external electrodes along the axial direction of the tube," the present invention varies luminous intensity by varying electric field intensity (page 8).

Contrary to the applicant's assertion, claim 16 recites no limitation of the varying of luminous intensity, but rather recites that the "outer electrode contains at least one point of inflection where the winding pitch of the coil changes from a small value to a large value," which Yokogawa provides teaching of, as addressed in the rejection above. Moreover, motivation to combine the references of Odigaki and Yokogawa are

independent of the principle of varying luminous intensity provided in the present invention. Therefore the examiner maintains the rejection of claim 16.

The rejection of claim 21 has been altered to reflect its dependence on claim 16, which is a result of the amendment changing claim 21 from an independent claim to a multiply dependent claim which can depend on any of the existing claims.

***Allowable Subject Matter***

6. Claims 1, 5-15, 17-20 and 22 are allowed.
7. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 5-9 and 18-19, the prior art of record does not teach or suggest the combination of limitations as set forth in claims 5 and 19, and specifically comprising the limitation of the outer electrode becoming smaller proportionate to its distance from the inner electrode. Yokogawa discloses an outer electrode that changes winding pitch across the length of the tube, becoming smaller towards the ends of the tube (Figure 10a). However, Yokogawa lacks an inner electrode, the lamp discharge being produced by the two outer electrodes. There is no motivation to combine the winding disclosed by Yokogawa with a lamp with an inner electrode in order to provide a lamp having an outer electrode with a winding pitch that varies according to its distance from the inner electrode.

The prior rejection of claims 5-9 and 19 under the second paragraph of 35 U.S.C. § 112 are retracted upon clarification by the applicant regarding the claim language of claims 5 and 19. The examiner agrees that the claims, in combination with the record,

are sufficiently clear in stating that the winding pitch of the outer electrode becomes smaller in direct proportion to the distance from the inner electrode.

Regarding claims 10-15, 17, 20 and 22, the prior art of record does not teach or suggest a lamp having an outer electrode with a tube power increasing means at a portion where a disturbed diffused positive column or a constricted positive column is generated in the tube, or where the winding pitch of the external electrode becomes minimum in a region (pH) facing a pair of constricted positive columns (PCs) generated in lamp and where it becomes maximum at both ends in a region (pV) facing a diffused positive column (PCd) generated in the tube, and decreases stepwisely from both ends toward the central portion.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (703)305-4745. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703)305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7382 for regular communications and (703)308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Sharlene Leurig  
July 1, 2003

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